

# Development of Rosemary Induces Green Tea

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## ABSTRACT

The study of physiochemical properties of fresh Rosemary leaves powder and also the preparation of tea from standard green tea. Powder of Rosemary leaves is prepared by sun drying for duration of 3-4 hours, followed by grinding into fine particles size. Dried leaves are subjected to proximate analysis. Dried leaf powder reveals a moisture content of 6.41%, total ash at 5.52%, and crude fiber at 25.19%. The physicochemical properties disclose that sorbic acid is absent. Three formulations (T0, T1, and T2) were created by varying the amounts of rosemary leaves (1.45gm, 1.50gm, and 1gm) green tea ratio (1.45gm, 1gm, and 1.50gm) rosemary green tea T2 was accepted on the basis of sensory characteristics like taste, texture, and flavor and overall acceptability. The selected sample was assessed from proximate analysis and microbial tests.

**KEYWORDS:** Rosemary leaves, green tea, cinnamon

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## 1. INTRODUCTION

*Rosmarinus officinalis* (Liliaceae) is an aromatic plant that has been traditionally and medicinally used as a carminative, antispasmodic, painkiller, and circulatory tonic, to stimulate hair growth and to improve memory dysfunction. This study aimed to assess the potential effects of rosemary solvent extracts on human immune function. (Hiwa M. Ahmed, 2022). Due to its enjoyment and health benefits, tea is one of the most popular drinks in the world, second only to water. In terms of health advantages, green tea has generally been determined to be superior to black tea. The polyphenols that provide green tea its antioxidant and other health advantages are the main ingredients of interest. Flavonoids are the main polyphenols in green tea. The catechins-epicatechin (EC), epigallocatechin (EGC), epicatechin gallate (ECG), and epigallocatechin the four main flavonoids in green tea (EGCG). (Mishra, 13 July 2009) In experimental tests on animals and in vitro cultures, green tea's polyphenolic antioxidants have demonstrated anticarcinogenic capabilities. There are currently conflicting reports on the bioavailability and absorption of tea antioxidants in humans. In assessing the absorption, systemic distribution, and renal

excretion of herbal tea antioxidants in healthy adults, the ferric attempting to reduce power (FRAP) assay (US pending) was used in this study to measure the antioxidant power of both urine and plasma after consumption of green tea. (I. F. F. Benzie, 18 November 2009) There are significant amounts of antioxidant chemicals in several forms of tea, especially green tea. Tea is regarded as the healthiest beverage in the world as a result. In Asia, green tea is a favourite beverage since it isn't fermented and has more polyphenols than other varieties of tea. This drink is loaded with polyphenols like catechins and alkaloids like caffeine. The catechins found in green tea are commonly referred to as polyphenols. Strong antioxidant action and the biochemical properties of polyphenol components are two criteria used to assess the quality of tea. As is evident, the powder made from green tea contains every component, including antioxidants, amino acids, saccharides, and caffeine. (Latifi) Also, it has been claimed that volatile compounds included in rosemary extracts give them a distinctive flavor, color, and aroma. Oleanolic acid has antiviral, antioxidant, and antiproliferative qualities that guard against oxidative apoptosis. Cancer is

lessened by gallic acid. This article offers a thorough overview of rosemary species production, bioactive chemicals, health advantages, and food sector applications. It has been suggested that rosemary increases the levels of antioxidant enzymes. The usage of rosemary extract and extracts can help satisfy the desire for artificial food additives to be eliminated or reduced, despite the current trend in the food industry. This article offers a thorough overview of rosemary species cultivation, active chemicals, health advantages, and food sector applications. (Ejaz Aziz 1, 16 December 2022) Caffeine and tannin found in green tea (GT) may influence weight gain, possibly via promoting fat oxidation and greater energy expenditure. In our earlier reports, we discussed how GT affected metabolic activity in connection to weight loss and body composition. On assessments of body weight or body composition, 12-week GT medication during a reduced diet (LED) had no impact. In the current study, we looked into whether consuming GT during LED, without regard to regular caffeine use, affected risk factors for health. (K. Diepvens a, 30 January 2006).

## 2. Materials and Methods:

### 2.1. Materials:

Rosemary leaves and standard green tea was purchased from the local market of Vadodara, Gujarat, India. Cinnamon is also purchased from the local market of Vadodara, Gujarat, India.

### 2.2. Rosemary Green Tea Preparation

Tea is been prepared by using three different proportions of rosemary leaves (1.45gm, 1.50gm, and 1gm) and green tea (1.45gm, 1gm, and 1.5gm). Hereafter samples are referred to as T0, T1, and T3. Firstly, take some rosemary leaves after that dried them, and crush them into small particles add standard green tea to it, and add some amount of cinnamon to enhance flavor. This tea helps in lower blood sugar levels, protects eye vision, etc.

Collection of fresh rosemary leaves



Cleaning and washing



Size reduction and crushing by hand



Drying (50°C for 30 minutes)



Blending with Standard Green Tea



Packaging into Tea bags (3g each)

**Flow chat for Rosemary Green Tea**

### 2.3. Formulations of Rosemary Green Tea:

Ingredients	T0	T1	T2
Rosemary leaves	1.45	1.50	1
Standard green tea	1.45	1	1.50
Cinnamom	0.1	0.5	0.5

### 2.4. Making of Tea:

Open the sachet, remove 1 tea bag, and place it in your cup.

Boil some water about 200ml at 90°C over the teabag.

Let it infuse for 3-4 minutes.

Pour the fresh rosemary green tea into the cup and indulge, any time of day.

### 2.5. Chemical Composition Analysis:

The samples undergo chemical quality evaluation using a hot air oven for drying, and moisture was measured. This method is used to calculate the total ash content, and moisture. Methods of food analysis, 2003, energy was determined by FAO chapter -3. Calculation of the energy content of food energy conversion factors, 2003.

### 2.6. Organoleptic Quality analysis procedure:

The most common method for measuring food preferences is a questionnaire of manufactured foods or food categories, with a hedonic scale used to rate the degree of liking. The hedonic is an organoleptic quality rating scale on which the judge expresses his level of liking. The overall tests were carried out on a 9-point Hedonic scale. The organoleptic Hedonic scale was used in the following ratings: 1) Dislike extremely, 2) Dislike moderately 3) Dislike moderately 4) Dislike slightly 5) Neither like nor dislike, 6) Likely slightly 7) Like moderately 8) Like extremely 9) Like extremely. This test was conducted by semi-trained panelists who were teachers at Parul University's Department of Food Technology in Vadodara, Gujarat.

### 2.7. Microbiology analysis procedure:

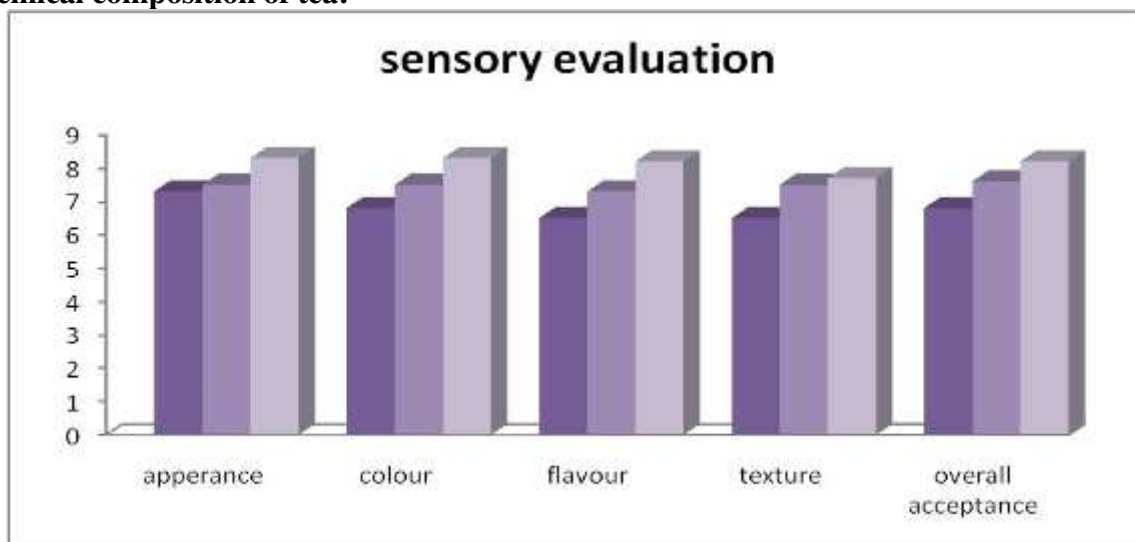
Microbiological tests such as E.coli were carried out in accordance with Indian standard procedures for the inspection of dairy products.

### 2.8. Mineral testing:

Mineral detection in food in determining the daily portion and supplement level. The amount of ash in the food is a total measure of minerals present, an inorganic compound present in food such as Ca, Na, K, etc. Minerals like calcium (Ca) and iron (Fe) determine by the flame photometry method.

### 3. Results and Discussion:

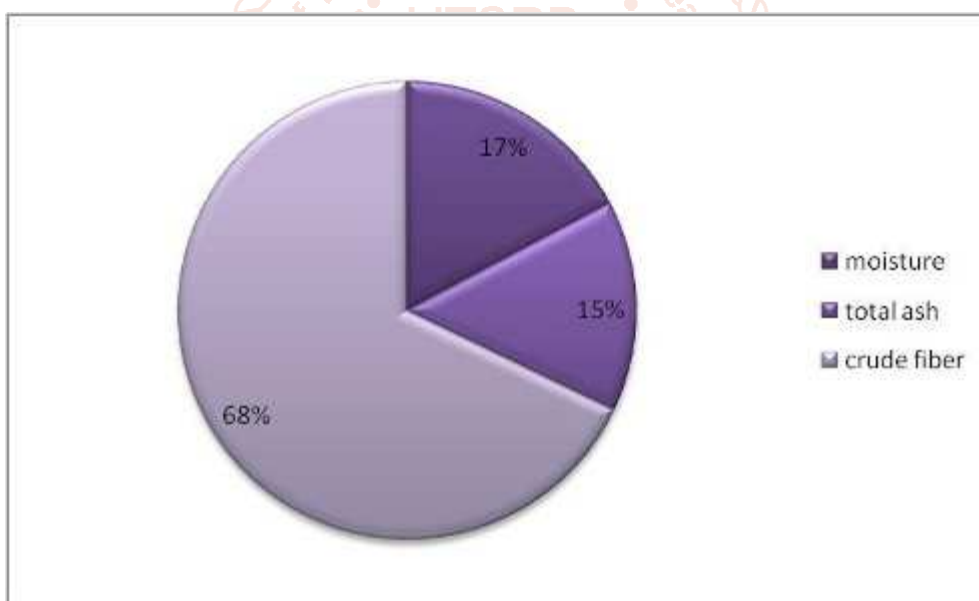
#### 3.1. Chemical composition of tea:



The chemical composition of tea samples is present in table 3.2.1 Moisture, total ash, crude fiber.

Constituents	Units	Results T1
Moisture	%	6.41
Total ash	%	5.52
Crude fiber	g/100g	25.19

**Table 3.2 Chemical composition of various tea preparation**



**Chemical composition of various tea preparation**

#### 3.2. Microbiological quality assessments of tea:

##### 3.2.1. E. coli count:

E. coli live in the intestines of humans and animals. Most E. coli strain causes diarrhoea.

Also, cause vomiting and severe stomach pains. It can be spread by containment foods and drinks particularly raw vegetables and undercooked ground beef. IS 5887(Part 1): 1976 RA2022.

##### 3.2.2. Yeast and Mould count:

The number of colony-forming units presents per gram of products. A colony-forming unit is the scientific means of counting and reporting the population of live bacteria mold and yeast, IS 5403: 1999 RA 2018.

Microbial parameters	Units	Results (T1)
E. coli	Per g	Absent
Yeast and Mould count	CFU per g	7,200
Sorbic acid	Per g	Absent

### 3.3. Microbiological quality of tea

### 3.4. Minerals composition of tea preparation:

The proper daily portion and the number of supplements required can be determined by checking the minerals in the diet. Ash content is the measurement of the total amount of mineral **content** is the quality of individual inorganic ingredients like Ca, Na, K and Cl that are present in a food.

Minerals	Units	Results
Calcium (Ca)	mg/100g	112.29
Iron (Fe)	mg/100g	0.34

**Table 3.4 Minerals composition of tea**

### 4. Conclusions:

The results indicate that tea prepared from rosemary leaves using standard green tea and cinnamon has more health benefits than any other tea. Rosemary tea is an herbal tea that contains compounds that have anti-inflammatory and antimicrobial properties. Additionally, it helps boost the immune system and improve blood circulation and is also rich in iron, vitamins, and calcium.

### Compliance with ethical standards

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### Disclosure of conflict of interest

The authors declare that there is no conflict of interest.

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